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Causes of childhood epilepsy: A look for celiac disease?

Davide Giuseppe Ribaldone,[1*] Rinaldo Pellicano[2]

[1]Department of Medical Sciences, Division of Gastroenterology, University of Torino, Torino, Italy

[2]Unit of Gastroenterology, Molinette Hospital, Turin, Italy

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[*]Corresponding author: Davide Giuseppe Ribaldone - Department of Medical Sciences, Division of Gastroenterology, University of Torino, C.so Bramante 88 - 10126 Torino – Italy. E-mail: davrib_1998@yahoo.com Tel: +390116333918, Fax: +390116333623.

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Dear Editor,

Epilepsy is a protean disease caused by many aetiologic factors like congenital syndromes, hypoxia, metabolic disorders, trauma. In a recent study Sanlidag et al. evaluated aetiologic factors and neurologic and/or psychiatric comorbidities among children affected by epilepsy in Cyprus. Two hundred and fifty-four children were enrolled. In most of the patients (78%) an aetiologic factor of epilepsy was not found. Neurologic insult (haemorrhage, ischemia or hypoxia) was the most prevalent identified aetiologic factor (10.6%), followed by genetic syndrome (4.7%), metabolic disorders (2%), neurocutaneous syndromes (1.2%) and a miscellanea of causes (tumours, central nervous system infections, autoimmune encephalitis) (3.5%). Regarding neurologic comorbidities, 12.4% of children suffered from migraine and headache too. Regarding psychiatric comorbidities, attention deficit/hyperactivity disorder (ADH) was present in 11.8% of children and autism spectrum disorders in 1.2%, at least one among anxiety or depression or aggression or oppositional defiant was reported in 5.9% of cases.[1]

Celiac disease (CD) is a chronic, immune-mediated disorder, characterized by malabsorption and villus atrophy of the small intestine after ingestion of gluten (present in wheat) or related proteins (present in rye and barley), in genetically susceptible individuals expressing the HLA class II molecules DQ2 or DQ8. Furthermore, following strict adherence to a gluten-free diet in most of the patients a prompt clinical and histologic improvement is observed.[2] The overall prevalence of CD varies between 0.7% and 2%. The clinical manifestations of the disease vary greatly, and range from typical gastrointestinal manifestations (diarrhoea, bloating, growth retardation, abdominal pain, vomiting, muscle wasting, nutritional deficiencies) to absent, minimal, or unusual intestinal complaints with extraintestinal manifestations or disorders (atypical CD).[2,3] Neurologic manifestations have been reported in about 6-10% of patients with CD. In particular, the more frequent described diseases have

been cerebellar ataxia, peripheral neuropathy, migraine, autism, dementia, multifocal leukoencephalopathy and epilepsy. The clinical spectrum of epilepsy associated to CD ranges from benign syndromes to intractable epilepsy with evolution to a severe encephalopathy, including progressive myoclonic epilepsy. Confirmed evidence of an association between temporal lobe epilepsy with hippocampal sclerosis and gluten sensitivity has been provided. Although the precise mechanism of association between CD and epilepsy remains unknown, several hypotheses have been proposed. For example, it has been suggested that the antibodies associated with CD may be themselves neurotoxic or, alternatively, these may be a marker for a neurotoxic immunological process.[4] Children with CD are also at increased risk for mood disorders (relative risk, RR: 1.2; 95% confidence interval, CI: 1.0-1.4), anxiety disorders (RR: 1.2; 95% CI: 1.0-1.4), attention deficit hyperactivity disorder (ADHD) (hazard ratio, HR: 1.2; 95% CI: 1.0-1.4).[5] Psychiatric disorders occurring before the diagnosis of CD may be attributed to active CD, resulting in cerebral hypoperfusion, presence of proinflammatory cytokines, and low folate levels. However, the exact mechanisms underlying the association between CD and psychiatric disorders have yet to be established.

In conclusion, considering these data we suggest that measurement of anti-tissue transglutaminase and anti-endomysium immunoglobulin A should be performed in patients with epilepsy and psychiatric comorbidities (antibody-positive patients should be offered a duodenal biopsy), especially in children.[6] In this population, a gluten free diet in case of concomitant CD could have beneficial effects not only on seizures control but also in the management of the associated neurologic and psychiatric disorders.

References

1. Sanlidag B, Dirik MA. Comorbidities and childood epilepsy. Gazz Medica Ital - Arch per le Sci Mediche 2019;178:645–50.

2. Husby S, Koletzko S, Korponay-Szabó I, Kurppa K, Mearin ML, Ribes-Koninckx C, *et al*. European Society Paediatric Gastroenterology, Hepatology and Nutrition Guidelines for Diagnosing Coeliac Disease 2020. J Pediatr Gastroenterol Nutr 2019 Oct 17. doi: 10.1097/MPG.0000000000002497. [Epub ahead of print]

3. Boonpheng B, Cheungpasitporn W, Wijarnpreecha K. Renal disease in patients with Celiac disease. Minerva Med 2018;109:126-40.

4. Ribaldone DG, Astegiano M, Fagoonee S, Rizzetto M, Pellicano R. Epilepsy and celiac disease: Review of literature. Panminerva Med 2011;53:213-6.

5. Campagna G, Pesce M, Tatangelo R, Rizzuto A, La Fratta I, Grilli A. The progression of coeliac disease: Its neurological and psychiatric implications. Nutr Res Rev 2017;30:25-35.

6. Ribaldone DG, Saracco GM, Pellicano R. Pediatric epilepsy and psychiatric comorbidity: Could celiac disease diagnosis improve the outcome? Minerva Pediatr 2018;70:634-5.